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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/007,015 | 12/04/2001 | Ryo Ito | 15144 | 7932 |

23389 7590 02/08/2005

SCULLY SCOTT MURPHY & PRESSER, PC
400 GARDEN CITY PLAZA
GARDEN CITY, NY 11530

EXAMINER

NGUYEN, KHAI MINH

ART UNIT PAPER NUMBER

2687

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/007,015

Applicant(s)

ITO ET AL.

Examiner

Khai M Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9-18, and 23-30 is/are rejected.
- 7) ☐ Claim(s) 5-8 and 19-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/14/02, 9/12/03, 4/12/2004, and 7/9/2004
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office Action is response to Amendment filed on 10/25/2004.
Claims 1-30 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

Priority

3. Receipt is acknowledged of papers submitted under 35.U.S.C. 119 (a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

4. The references listed in the Information Disclosure Statement filed on November 14, 2002, September 12, 2003, April 12, 2004, and July 9, 2004 have been considered by the examiner (see attached PTO-1449 form or PTO/SB/08A and 08B forms).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **1-4, 9-14, 17-18, 23-28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama (Pat-5757326) in view of Iwai Toru (Japan-63-222504).

Regarding claim 1, Koyama teaches a wireless device including:

at least an antenna (fig.1a, fig.1b, col.6 lines 40-58) ; and

at least a conductive ground serving as a ground, through which a high frequency current flows (col.1, lines 44-64, col.3, lines 47-49)), and said at least side of said conductive ground having a feeding point (fig.27b, col.18, lines 48-64), at which said antenna is electrically connected to said conductive ground (fig.27a, col.18, lines 32-47),

wherein said feeding point is positioned asymmetrical to said conductive ground in any directions included in a plane parallel to said conductive ground (fig.27b, col.18, lines 48-64).

Koyama fails to specifically disclose an conductive ground having at least a side which is approximately one quarter wavelength of a radio wave transmitted from said antenna. However, Iwai Toru teaches an conductive ground having at least a side which is approximately one quarter wavelength of a radio wave transmitted from said antenna (*figure, element d1 and d2, abstract, constitution*). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an

conductive ground having at least a side which is approximately one quarter wavelength of a radio wave transmitted from said antenna as taught by Iwai Toru with Koyama teaching in order to provide mobile phone that is small and meets consumer expectations relating to ease of portability.

Regarding claim 2, Toru with Koyama further teaches the wireless device as claimed in claim 1, wherein said feeding point on said side is positioned closer to one end of said side than a center position (fig.27a, fig.27b, col.18, lines 48-64).

Regarding claim 3, Toru with Koyama further teaches the wireless device as claimed in claim 1, wherein said high frequency current flowing through said conductive ground has an asymmetrical distribution of current over said conductive ground (fig.2, col.7, lines 22-64).

Regarding claim 4, Toru with Koyama further teaches the wireless device as claimed in claim 1, wherein said antenna extends in straight from said feeding point in a direction perpendicular to said side and included in said plane which includes said conductive ground (fig.5, fig.27a, col.8, lines 43-56, col.18, lines 32-47).

Regarding claim 9, Toru with Koyama further teaches the wireless device as claimed in claim 1, wherein said antenna is positioned in a bottom side of said wireless device (fig.27a, fig.27b, col.11, lines 23-41, col.18, lines 48-63).

Regarding claim 10, Toru with Koyama further teaches the wireless device as claimed in claim 1, wherein said antenna comprises a conductive pattern which is integrated with said conductive ground on a circuit board accommodated in a case of said wireless device (col.19, lines 23-58).

Regarding claim 11, Toru with Koyama further teaches the wireless device as claimed in claim 1, wherein said antenna comprises a conductive plate provided on an inner wall of a case of said wireless device (fig.28, col.19, lines 1-13).

Regarding claim 12, Toru with Koyama further teaches the wireless device as claimed in claim 1, wherein said conductive ground comprises a conductive pattern on a circuit board accommodated in a case of said wireless device (fig.26, col.17, line 63 to col.18, line 9).

Regarding claim 13, Toru with Koyama further teaches the wireless device as claimed in claim 12, wherein said antenna is accommodated in a case of said wireless device (fig.26, col.17, line 63 to col.18, line 9).

Regarding claim 14, Toru with Koyama further teaches the wireless device as claimed in claim 13, wherein said antenna is accommodated in a bottom space defined between a bottom of said circuit board and a bottom wall of said case (fig.26, col.17, line 63 to col.18, line 9).

Regarding claim 17, Koyama teaches a wireless device including:

at least an antenna (fig.1a, fig1.b, col.6, lines 40-58); and

at least a conductive ground serving as a ground, through which a high frequency current flows (col.1, lines 44-64, col.3, lines 47-49), and said at least side of said conductive ground having a feeding point, at which said antenna is electrically connected to said conductive ground (fig.27a, col.18, lines 32-47).

wherein said feeding point on said side is positioned closer to one end of said side than a center position (fig.27a, fig.27b, col.18, lines 48-64), so that said feeding point is positioned asymmetrical to said conductive ground in any directions included in a plane parallel to said conductive ground (fig.27b, col.18, lines 48-64), whereby said

high frequency current flowing through said conductive ground has an asymmetrical distribution of current over said conductive ground (fig.2, col.7, lines 22-64).

Koyama fails to specifically disclose an conductive ground having at least a side which is approximately one quarter wavelength of a radio wave transmitted from said antenna. However, Iwai Toru teaches an conductive ground having at least a side which is approximately one quarter wavelength of a radio wave transmitted from said antenna (*figure, element d1 and d2, abstract, constitution*). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an conductive ground having at least a side which is approximately one quarter wavelength of a radio wave transmitted from said antenna as taught by Iwai Toru with Koyama teaching in order to provide mobile phone that is small and meets consumer expectations relating to ease of portability.

Regarding claim 18, Toru with Koyama further teaches the wireless device as claimed in claim 17, wherein said antenna extends in straight from said feeding point in a direction perpendicular to said side and included in said plane which includes said conductive ground (fig.5, fig.27a, col.8, lines 43-56, col.18, lines 32-47).

Regarding claim 23, Toru with Koyama further teaches the wireless device as claimed in claim 17, wherein said antenna is positioned in a bottom side of said wireless device (fig.27a, fig.27b, col.11, lines 23-41, col.18, lines 48-63).

Regarding claim 24, Toru with Koyama further teaches the wireless device as claimed in claim 17, wherein said antenna comprises a conductive pattern which is integrated with said conductive ground on a circuit board accommodated in a case of said wireless device (col.19, lines 23-58).

Regarding claim 25, Toru with Koyama further teaches the wireless device as claimed in claim 17, wherein said antenna comprises a conductive plate provided on an inner wall of a case of said wireless device (fig.28, col.19, lines 1-13).

Regarding claim 26, Toru with Koyama further teaches the wireless device as claimed in claim 17, wherein said conductive ground comprises a conductive pattern on a circuit board accommodated in a case of said wireless device (fig.26, col.17, line 63 to col.18, line 9).

Regarding claim 27, Toru with Koyama further teaches the wireless device as claimed in claim 26, wherein said antenna is accommodated in a case of said wireless device (fig.26, col.17, line 63 to col.18, line 9).

Regarding claim 28, Toru with Koyama further teaches the wireless device as claimed in claim 27, wherein said antenna is accommodated in a bottom space defined between a bottom of said circuit board and a bottom wall of said case (fig.26, col.17, line 63 to col.18, line 9).

Claims **15-16, 29-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama (Pat-5757326) in view of Iwai Toru (Japan-63-222504) further in view of Munson (Pat-6049314).

Regarding claim 15, Toru with Koyama teaches the wireless device as claimed in claim 14 (fig.26, col.17, line 63 to col.18, line 9).

Koyama and Toru fails to specifically disclose a frequency of said radio wave is not lower than 1 GHz. However, Munson teaches a frequency of said radio wave is not lower than 1 GHz (fig.3, col.5, line 39 to col.6, line 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a frequency of said radio wave is not lower than 1 GHz as taught by Munson, Koyama and Toru teaching in order to increase the antenna bandwidth without increasing the antenna feed impedance.

Regarding claim 16, Koyama, Toru and Munson further teaches the wireless device as claimed in claim 15, wherein said wireless device is a mobile telephone device (col.6, lines 24-38).

Regarding claim 29, Koyama and Toru teaches the wireless device as claimed in claim 28 (fig.26, col.17, line 63 to col.18, line 9).

Koyama and Toru fails to specifically disclose a frequency of said radio wave is not lower than 1 GHz. However, Munson teaches a frequency of said radio wave is not lower than 1 GHz (fig.3, col.5, line 39 to col.6, line 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a frequency of said radio wave is not lower than 1 GHz as taught by Munson, Koyama and Toru teaching in order to increase the antenna bandwidth without increasing the antenna feed impedance.

Regarding claim 30, Koyama, Toru and Munson further teaches the wireless device as claimed in claim 29, wherein said wireless device is a mobile telephone device (col.6, lines 24-38).

Allowable Subject Matter

6. Claims 5-8, 19-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Citation of Pertinent Prior Art

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rothe (U.S.Pat-6342855) discloses Mobile radiotelephony planar antenna.

Huber et al. (U.S.Pat-4521913) discloses Multifrequency antenna matching apparatus with automatic tuning.

Higgins, Jr. (U.S.Pat-5355524) discloses Integrated radio receiver/transmitter structure.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khai M Nguyen whose telephone number is 703.305.9006. The examiner can normally be reached on 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on 703.306.3016. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Khai Nguyen
Au: 2687


ELISEO RAMOS PELICIANO
PATENT EXAMINER

2/5/2005